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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,535	06/29/2000	Shenheng Guan	98-13DIV1	8642

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SYMYX TECHNOLOGIES INC  
LEGAL DEPARTMENT  
3100 CENTRAL EXPRESS  
SANTA CLARA, CA 95051

EXAMINER

BEX, PATRICIA K

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/607,535	Applicant(s) GUAN ET AL.	
	Examiner P. Kathryn Bex	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 61-104 is/are pending in the application.
- 4a) Of the above claim(s) 73-81 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 61-72 and 82-104 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                                                   |                                                                             |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3-7,9,12</u> | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 61-72 and 82-104, drawn to a method for screening members of a combinational library, classified in class 435, subclass 6.
  - II. Claims 73-79 drawn to a method for screening catalysts for a reaction of interest, classified in class 436, subclass 178.
  - III. Claims 80-81, drawn to a method for sequentially screening catalysts for a reaction of interest, classified in class 210, subclass 656.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions presently claimed in Group I to Group III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together and they have different modes of operation, different functions. The feeding of one or more reactants to a subset of reaction vessels step of Group II are not required by the claims of Group I or Group III. Similarly, the simultaneous flowing of a test fluid through six or more vessels feature of the claims of Group I is not required by the claims of Group II or III. A, the base block and cover block features of the claims of Group III is not required by the claims of Group I or II. None of the claims as presently written link together the inventions set forth in Group I to III.
3. During a telephone conversation with Paul Stone on October 29, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 61-72, 82-104.

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Applicant in replying to this Office action must make affirmation of this election. Claims 73-81 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 61-64, 72, 82-85, 90-104 are rejected under 35 U.S.C. 102(a) as being anticipated by Windhab *et al* (WO 98/07026 A1).

Windhab *et al* teach a process for simultaneously examining chemical reactions in miniaturized reactors arranged parallel to each other. The system includes an entrance volume 5 and a number of reactors 2 containing either heterogeneous or homogeneous catalysts 8 in one block which are exposed to a uniform temperature. The number of reactors can be more than 20 and brought into contact and reacted in parallel, i.e. simultaneously with an educt or educt mixtures in liquid and/or gaseous form. The block containing drilled microchannels 10, i.e. flow

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restrictors, providing fluid communication between the reactors and an exit control volume 11. Moreover, Windhab *et al* teach detection via the use of several beams from a single detector through the exit control volume or the use of several analyzers, so that simultaneous acquisition of spectra with several reactors is possible. The reaction product mixtures can be analyzed by spectroscopic analysis, i.e. IR spectroscopy, or other spectroscopic methods such as laser or UV spectroscopy (page 6, 3<sup>rd</sup> paragraph –page 9, Fig. 2). The obtained data is set up in a data matrix such that all selectable and documentable reaction conditions are correlated to changes to a property of each reactor. Note: the small diameter of the microchannel 10 with respect to the reactor diameter 2 ensures the resistance to fluid flow is greater in the flow restrictor.

7. Claims 65-66, 70-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Milberger (4,099,923).

Milberger teaches an automatic catalytic screening unit for flowing a test fluid through one selector valve 27 to provide selective fluid communication between the entrance control volume and one of six separate reaction chamber containing a plurality of different catalysts. The reaction products are discharged from the reactors through a selector valve 120 to a gas chromatograph to yield the desire analysis. The contact time of each of the candidate catalysts are synchronized by the operation of the distribution valve and selection valve via control system 128.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milberger (4,099,923) in view of Mathew *et al* (USP 5,753,185).

Milberger teaches an apparatus comprising a plurality of vessels 96, each having inlet and outlet, a detector for analyzing vessel effluent 126, an entrance control volume in fluid communication with the inlet of each of the vessels, an exit control volume in fluid communication with the outlet of the vessels (column 3-7, Fig. 1). Milberger does not teach the use of a plurality of flow restrictors between each of the vessels. However, Mathews *et al* do teach the use of a plurality of restrictors 20, 40 before a reaction vessel 26 (columns 3-4, Fig. 1).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to have included in the apparatus of Milberger a plurality of restrictors, in order to control the flow rate and pressure of the fluid entering and leaving the vessels (column 1, lines 66-67 and column 2, line 1).

11. Claims 86-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Windhab *et al* (WO 98/07026 A1).

Windhab *et al* as previously discussed above, does not specifically recite the total time to

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screen the library members being about six minutes. However, Windhab *et al* do teach determining of the dependency of parameters in spectral ranges for optimization of the analysis. The flow rate, pressure sample composition and temperature are all variables, which are adjusted optimal analysis.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the screen time six, forty-eight, or twenty-four minutes, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

12. No claims allowed.

13. The prior art made of record and not relied upon which is considered pertinent to applicant's disclose are Desrosiers *et al*, Dahl *et al*, Guan *et al*, and Willson, III . They are cited of interest in that they show various embodiments of combinatorial catalytic reactors.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to P. Kathryn Bex whose telephone number is (703) 306-5697. The examiner can normally be reached on Mondays-Thursdays, alternate Fridays from 6:00 am to 3:30 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 308-4037.

The fax number for the organization where this application or proceeding is assigned is (703) 872-9310 for official papers prior to mailing of a Final Office Action. For after-Final Office Actions use (703) 872-9311. For unofficial or draft papers use fax number (703) 305-

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7719. Please label all faxes as official or unofficial. The above fax numbers will allow the paper to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

*Kathryn Bex*

P. Kathryn Bex  
Patent Examiner  
AU 1743  
January 10, 2003

*Jill Warden*  
Jill Warden

Supervisory Patent Examiner  
Technology Center 1700